

## Subject Index of Volume 166

Acetone oligomerization  
 Polypropylene membrane; Nickel–cadmium cell; Electrochemical properties (Ciszewski, A. (166) 526)

Activation  
 DMFCs; Pt–Ru catalyst; Sensitization (Zhu, J. (166) 331)

Activation overpotential  
 Proton exchange membrane fuel cell; Shoulder/channel ratio; Electrochemical reaction; Cell performance (Chiang, M.-S. (166) 362)

Adjoint  
 SOFC; Fuel cell; Design; Sensitivity analysis (Kapadia, S. (166) 376)

Air exposure  
 Hard carbon; Carbon coating; Irreversible capacity; Negative-electrode material; Lithium-ion battery (Lee, J.-H. (166) 250)

Alcohol-reduction process  
 PtRu/C; PtSn/C; PtSnRu/C; Methanol oxidation; Ethanol oxidation; Fuel cell (Neto, A.O. (166) 87)

Al-doped spinels  
 Cycling performance; Oxygen deficiency; Mn dissolution; Lithium-ion batteries (Xia, Y. (166) 485)

Alternate energy systems  
 Inverter; Ripple (dc-bus voltage ripple); DSP (Shireen, W. (166) 445)

Aluminate cement  
 Graphite; Corrosion; Fuel cell; Bipolar plate (Shen, C. (166) 419)

Aluminium alloy  
 PEMFCs; Endplates; Surface treatments (Fu, Y. (166) 435)

Aluminum  
 Hypochlorite; Catalytic metals; Zinc; Batteries; Cells (Cardenas-Valencia, A.M. (166) 273)

Aluminum  
 Lithium ion battery; Tin oxide; Anode; Surface modification (Lei, X. (166) 509)

Aluminum electrolytic capacitor  
 Hyperbranched polymer; Poly(3,4-ethylenedioxythiophene) (Nogami, K. (166) 584)

Anode  
 Lithium ion battery; Aluminum; Tin oxide; Surface modification (Lei, X. (166) 509)

Anode  
 Lithium ion battery; Current collector; Electrodeposition (Jiang, T. (166) 503)

Anode  
 Solid oxide fuel cell; Y-doped SrTiO<sub>3</sub>; Electrical conductivity (Li, X. (166) 47)

Anode functional layer (AFL)  
 Solid oxide fuel cell (SOFC); Gradient anode; Ni–YSZ cermet; Microstructure; Cell performance (Kong, J. (166) 337)

Asymmetric capacitor  
 Li-ion; Capacitor; Nanogate carbon; Automotive (Aida, T. (166) 462)

Automotive  
 Li-ion; Capacitor; Asymmetric capacitor; Nanogate carbon (Aida, T. (166) 462)

Balance-of-plant  
 Proton-exchange membrane fuel cell; Cathode inlet manifold; Polarization curve; Power; Efficiency (Kim, S.Y. (166) 430)

Batteries  
 Goal-seeking; Decision-maker; Coordinated discharge (Sastry, S. (166) 284)

Batteries  
 Hypochlorite; Catalytic metals; Zinc; Aluminum; Cells (Cardenas-Valencia, A.M. (166) 273)

Batteries  
 Li-ion; Cathode; V<sub>2</sub>O<sub>5</sub>; Conducting polymer; Hybrid material (Boyano, I. (166) 471)

Biomass fuel  
 Mechanistic modelling; Tubular SOFC; Cathode-supported; Synthesis gas (Suwanwarangkul, R. (166) 386)

Biomass gasification  
 Molten carbonate fuel cell; Computational fluid dynamics; Nanotechnology; Carbon; Fluidization (Gidaspow, D. (166) 400)

Bipolar plate  
 Aluminate cement; Graphite; Corrosion; Fuel cell (Shen, C. (166) 419)

Capacitance  
 Electric double layer capacitor; Ionic liquid electrolyte; Ionic dissociation; Composite electrode (Nagao, Y. (166) 595)

Capacitor  
 Li-ion; Asymmetric capacitor; Nanogate carbon; Automotive (Aida, T. (166) 462)

Capacity loss simulation  
 Lithium-ion battery; Carbon anode; Self-discharge; Storage (Ramasamy, R.P. (166) 266)

Capacity retention  
 Lithium manganese oxide; Lithium-ion battery; Hydrofluoric acid; Zirconium oxide particles (Park, S.B. (166) 219)

Carbon  
 Molten carbonate fuel cell; Biomass gasification; Computational fluid dynamics; Nanotechnology; Fluidization (Gidaspow, D. (166) 400)

Carbon aerogel  
 Cellulose acetate; Electrocatalyst support; Platinum nanoparticles; PEM fuel cell (Guilminot, E. (166) 104)

Carbon anode  
 Lithium-ion battery; Self-discharge; Capacity loss simulation; Storage (Ramasamy, R.P. (166) 266)

Carbon coating  
 Hard carbon; Irreversible capacity; Air exposure; Negative-electrode material; Lithium-ion battery (Lee, J.-H. (166) 250)

Carbon distribution  
 LiFePO<sub>4</sub>–C composite; Vibrant type ball-milling; Microwave heating; Particle size; Discharge capacity; Lithium battery (Song, M.-S. (166) 260)

Carbon nano-tubes  
 Hydrothermal synthesis; Nano-mixed oxides; Electrochemical capacitor; Cyclic voltammetry (Jayalakshmi, M. (166) 578)

## Catalyst

Proton exchange membrane fuel cell; Reformer; Methanol–steam reforming reaction; Conversion rate; Yield rate (Huang, C.-Y. (166) 450)

## Catalyst

Solid oxide fuel cell; Nanoparticle; Ruthenium; Lanthanum chromite (Madsen, B.D. (166) 64)

## Catalyst-gradient

Proton-exchange membrane fuel cell; Platinum usage (Prasanna, M. (166) 53)

## Catalytic metals

Hypochlorite; Zinc; Aluminum; Batteries; Cells (Cardenas-Valencia, A.M. (166) 273)

## Cathode

Batteries; Li-ion;  $V_2O_5$ ; Conducting polymer; Hybrid material (Boyano, I. (166) 471)

## Cathode

Lithium ion battery;  $Li_{1+z}Ni_{1-x-y}Co_xM_yO_2$ ;  $CO_2$ ; Ni valence (Shizuka, K. (166) 233)

## Cathode inlet manifold

Proton-exchange membrane fuel cell; Balance-of-plant; Polarization curve; Power; Efficiency (Kim, S.Y. (166) 430)

## Cathode material

$Li_{1.05}Ni_{0.35}Co_{0.25}Mn_{0.4}O_2$ ; Sol–gel coating;  $LiCoO_2$ ; Lithium ion battery (Son, J.T. (166) 343)

## Cathode material

$LiFePO_4$ ; Mechanical activation; Rechargeable lithium battery; Discharge capacity; Cycling performance (Kim, J.-K. (166) 211)

## Cathode-supported

Mechanistic modelling; Tubular SOFC; Synthesis gas; Biomass fuel (Suwanwarangkul, R. (166) 386)

## Cell performance

Proton exchange membrane fuel cell; Shoulder/channel ratio; Electrochemical reaction; Activation overpotential (Chiang, M.-S. (166) 362)

## Cell performance

Solid oxide fuel cell (SOFC); Gradient anode; Anode functional layer (AFL); Ni–YSZ cermet; Microstructure (Kong, J. (166) 337)

## Cells

Hypochlorite; Catalytic metals; Zinc; Aluminum; Batteries (Cardenas-Valencia, A.M. (166) 273)

## Cellulose acetate

Carbon aerogel; Electrocatalyst support; Platinum nanoparticles; PEM fuel cell (Guilminot, E. (166) 104)

 $CH_4$  conversion ratio

Tubular type reformer; Molten carbonate fuel cell (MCFC); *S/C* ratio (steam to carbon ratio); CO conversion ratio; Efficiency of reformer (Seo, H.-K. (166) 165)

## Characterization

Nano-nickel; Electrodeposition; Ethanol oxidation (Jin, G.-P. (166) 80)

## Chemical manganese dioxide

Factorial designs; Solid characterisation (Pagnanelli, F. (166) 567)

## Clamping pressure

Proton exchange membrane fuel cell; Electro-physical properties (Chang, W.R. (166) 149)

## CO conversion ratio

Tubular type reformer; Molten carbonate fuel cell (MCFC); *S/C* ratio (steam to carbon ratio);  $CH_4$  conversion ratio; Efficiency of reformer (Seo, H.-K. (166) 165)

## CO poisoning

Transient model; Two-phase; Oxygen bleeding; Platinum–ruthenium (Shah, A.A. (166) 1)

 $CO_2$ 

Lithium ion battery; Cathode;  $Li_{1+z}Ni_{1-x-y}Co_xM_yO_2$ ; Ni valence (Shizuka, K. (166) 233)

## Composite electrode

Electric double layer capacitor; Ionic liquid electrolyte; Capacitance; Ionic dissociation (Nagao, Y. (166) 595)

## Composite electrode

Polyaniline; Ruthenium oxide; Supercapacitor; Pseudocapacitance; Specific capacitance (Song, R.Y. (166) 297)

## Composite polymer electrolyte

Mesoporous; Lithium aluminate (Hu, L. (166) 226)

## Computational fluid dynamics

Molten carbonate fuel cell; Biomass gasification; Nanotechnology; Carbon; Fluidization (Gidaspow, D. (166) 400)

## Conducting polymer

Batteries; Li-ion; Cathode;  $V_2O_5$ ; Hybrid material (Boyano, I. (166) 471)

## Conductivity

Lithium secondary batteries;  $Li_4Ti_5O_{12}$ ; High tap-density; Spherical (Gao, J. (166) 255)

## Constant current discharge

Silver–zinc battery; Model; Porous electrodes; Multiple electrode reactions (Venkatraman, M. (166) 537)

## Conversion rate

Proton exchange membrane fuel cell; Reformer; Methanol–steam reforming reaction; Catalyst; Yield rate (Huang, C.-Y. (166) 450)

## Coordinated discharge

Goal-seeking; Decision-maker; Batteries (Sastry, S. (166) 284)

## Copper substrate

Lead electrodeposition; Sorbitol; Voltammetry; Scanning electron microscopy; Energy-dispersive X-ray spectroscopy (Siqueira, J.L.P. (166) 519)

## Corrosion

Aluminate cement; Graphite; Fuel cell; Bipolar plate (Shen, C. (166) 419)

## Current collector

Lithium ion battery; Anode; Electrodeposition (Jiang, T. (166) 503)

## Cyclic voltammetry

Hydrothermal synthesis; Nano-mixed oxides; Electrochemical capacitor; Carbon nano-tubes (Jayalakshmi, M. (166) 578)

## Cycling performance

Al-doped spinels; Oxygen deficiency; Mn dissolution; Lithium-ion batteries (Xia, Y. (166) 485)

## Cycling performance

$LiFePO_4$ ; Mechanical activation; Rechargeable lithium battery; Discharge capacity; Cathode material (Kim, J.-K. (166) 211)

## Cylindrical fuel cell

Expanded graphite; Diffusion layer; DMFC (Yazici, M.S. (166) 137)

## Decision-maker

Goal-seeking; Batteries; Coordinated discharge (Sastry, S. (166) 284)

## Design

SOFC; Fuel cell; Adjoint; Sensitivity analysis (Kapadia, S. (166) 376)

## DFFC

Direct-flame solid oxide fuel cell; SOFC; Hydrocarbon; Reforming; Partial oxidation (Kronemayer, H. (166) 120)

## Different buffer solutions

Direct methanol fuel cell; Methanol electrooxidation; Pt–Ru/C nanoparticle electrocatalyst (Wang, Z.-B. (166) 317)

## Diffusion

Mass transfer layer; DMFC; Expanded graphite; Perforation (Yazici, M.S. (166) 424)

## Diffusion layer

Expanded graphite; Cylindrical fuel cell; DMFC (Yazici, M.S. (166) 137)

## Direct methanol fuel cell

Methanol electrooxidation; Pt–Ru/C nanoparticle electrocatalyst; Different buffer solutions (Wang, Z.-B. (166) 317)

## Direct methanol fuel cell

Porous media; Water transport; Dry-out; Two-phase flow (Shi, M.H. (166) 303)

## Direct methanol fuel cell

Sputter-deposition; Mass activities (Makino, K. (166) 30)

## Direct methanol fuel cell peak power

Polyaniline, Sol–gel modified Nafion; Methanol crossover; Membrane electrode assembly (Chen, C.-Y. (166) 324)

Direct-flame solid oxide fuel cell  
DFFC; SOFC; Hydrocarbon; Reforming; Partial oxidation (Kronemayer, H. (166) 120)

Discharge capacity  
 $\text{LiFePO}_4$ ; Mechanical activation; Rechargeable lithium battery; Cathode material; Cycling performance (Kim, J.-K. (166) 211)

Discharge capacity  
 $\text{LiFePO}_4$ -C composite; Vibrant type ball-milling; Microwave heating; Particle size; Carbon distribution; Lithium battery (Song, M.-S. (166) 260)

DMFC  
Expanded graphite; Diffusion layer; Cylindrical fuel cell (Yazici, M.S. (166) 137)

DMFC  
Mass transfer layer; Diffusion; Expanded graphite; Perforation (Yazici, M.S. (166) 424)

DMFCs  
Pt-Ru catalyst; Sensitization; Activation (Zhu, J. (166) 331)

Dry-out  
Direct methanol fuel cell; Porous media; Water transport; Two-phase flow (Shi, M.H. (166) 303)

DSP  
Alternate energy systems; Inverter; Ripple (dc-bus voltage ripple) (Shireen, W. (166) 445)

Dy  
Molten carbonate fuel cell; Ni-Dy alloys; NiO solubility; Electrochemical polarization (Liu, Z.P. (166) 348)

Dynamic model  
Hydrogen production; Steam electrolyser; SOEC; Intermediate temperature; Planar (Udagawa, J. (166) 127)

Efficiency  
Proton-exchange membrane fuel cell; Balance-of-plant; Cathode inlet manifold; Polarization curve; Power (Kim, S.Y. (166) 430)

Efficiency  
Solid oxide fuel cell; Gas turbine; Hybrid system; Part-load performance; Power (Yang, J.S. (166) 155)

Efficiency of reformer  
Tubular type reformer; Molten carbonate fuel cell (MCFC); S/C ratio (steam to carbon ratio);  $\text{CH}_4$  conversion ratio; CO conversion ratio (Seo, H.-K. (166) 165)

Electric double layer capacitor  
Ionic liquid electrolyte; Capacitance; Ionic dissociation; Composite electrode (Nagao, Y. (166) 595)

Electrical conductivity  
Hebb-Wagner polarization; Oxygen ion conductivity; Oxygen vacancy; Lanthanum gallate (Wang, S. (166) 22)

Electrical conductivity  
Solid oxide fuel cell; Anode; Y-doped  $\text{SrTiO}_3$  (Li, X. (166) 47)

Electrocatalyst  
Hydrogen production; Methanol electrolysis; Hydrogen evolution; Tungsten carbide (Hu, Z. (166) 458)

Electrocatalyst support  
Cellulose acetate; Carbon aerogel; Platinum nanoparticles; PEM fuel cell (Guilminot, E. (166) 104)

Electrochemical capacitor  
Hydrothermal synthesis; Nano-mixed oxides; Carbon nano-tubes; Cyclic voltammetry (Jayalakshmi, M. (166) 578)

Electrochemical polarization  
Molten carbonate fuel cell; Dy; Ni-Dy alloys; NiO solubility (Liu, Z.P. (166) 348)

Electrochemical properties  
Polypropylene membrane; Nickel-cadmium cell; Acetone oligomerization (Ciszewski, A. (166) 526)

Electrochemical reaction  
Proton exchange membrane fuel cell; Shoulder/channel ratio; Activation overpotential; Cell performance (Chiang, M.-S. (166) 362)

Electrodeposition  
Lithium ion battery; Anode; Current collector (Jiang, T. (166) 503)

Electrodeposition  
Nano-nickel; Characterization; Ethanol oxidation (Jin, G.-P. (166) 80)

Electrolyte  
Lithium bis(oxalato)borate; Salt;  $\text{LiMn}_2\text{O}_4$  (Yu, B.-T. (166) 499)

Electrolyte  
SOFC; LSGM; GNP (Lee, D. (166) 35)

Electrolytic deposition  
Nano-sized  $\text{Co}_3\text{O}_4$ ; Thin film; Raman spectroscopy (Liu, H.-C. (166) 478)

Electro-physical properties  
Proton exchange membrane fuel cell; Clamping pressure (Chang, W.R. (166) 149)

Endplates  
PEMFCs; Aluminium alloy; Surface treatments (Fu, Y. (166) 435)

Energy-dispersive X-ray spectroscopy  
Lead electrodeposition; Copper substrate; Sorbitol; Voltammetry; Scanning electron microscopy (Siqueira, J.L.P. (166) 519)

Environmental contamination  
Proton exchange membrane fuel cell (PEMFC);  $\text{NO}_x$ ;  $\text{SO}_2$  (Jing, F. (166) 172)

Eosin Y  
Photosensitized; Silica gel; Hydrogen evolution; Visible-light irradiation (Zhang, X. (166) 74)

Ethanol oxidation  
Nano-nickel; Electrodeposition; Characterization (Jin, G.-P. (166) 80)

Ethanol oxidation  
PtRu/C; PtSn/C; PtSnRu/C; Alcohol-reduction process; Methanol oxidation; Fuel cell (Neto, A.O. (166) 87)

Expanded graphite  
Diffusion layer; Cylindrical fuel cell; DMFC (Yazici, M.S. (166) 137)

Expanded graphite  
Mass transfer layer; Diffusion; DMFC; Perforation (Yazici, M.S. (166) 424)

Factorial designs  
Chemical manganese dioxide; Solid characterisation (Pagnanelli, F. (166) 567)

Fluidization  
Molten carbonate fuel cell; Biomass gasification; Computational fluid dynamics; Nanotechnology; Carbon (Gidaspow, D. (166) 400)

Fuel buffer/distributor  
Miniature fuel cell; PEMFC stack; Small hydrogen storage canister (Zhang, X. (166) 441)

Fuel cell  
Aluminate cement; Graphite; Corrosion; Bipolar plate (Shen, C. (166) 419)

Fuel cell  
Hydrogen evolution reaction (HER); PtPd-W/C electrocatalyst; Tungsten carbide (WC) (Wu, M. (166) 310)

Fuel cell  
Methanol conversion; Packed-bed reformer; Wall-coated reformer (Lee, M.-t. (166) 194)

Fuel cell  
PtRu/C; PtSn/C; PtSnRu/C; Alcohol-reduction process; Methanol oxidation; Ethanol oxidation (Neto, A.O. (166) 87)

Fuel cell  
SOFC; Design; Adjoint; Sensitivity analysis (Kapadia, S. (166) 376)

Fuel cells  
Nickel solubility; MCFC (Bodén, A. (166) 59)

Fuel cells  
Platinum electrodeposition; Graphite functionalization; Scharifker and Hills electrocrystallisation model (Massoni, N. (166) 68)

Fuel processing  
Portable power; Microreactor; PEMFC; Methanol steam reformer; Thermal management (Shah, K. (166) 177)

Gas diffusion layer  
Polymer electrolyte fuel cells; Micro-porous layer; Graded porosity (Tang, H. (166) 41)

## Gas turbine

Solid oxide fuel cell; Hybrid system; Part-load performance; Efficiency; Power (Yang, J.S. (166) 155)

## Gel polymer electrolyte

Membrane; Phase inversion; Interpenetrating polymer network; Ionic conductivity (Wang, Y.-J. (166) 202)

## GNP

SOFC; LSMG; Electrolyte (Lee, D. (166) 35)

## Goal-seeking

Decision-maker; Batteries; Coordinated discharge (Sastry, S. (166) 284)

## Graded porosity

Polymer electrolyte fuel cells; Micro-porous layer; Gas diffusion layer (Tang, H. (166) 41)

## Gradient anode

Solid oxide fuel cell (SOFC); Anode functional layer (AFL); Ni-YSZ cermet; Microstructure; Cell performance (Kong, J. (166) 337)

## Graphite

Aluminate cement; Corrosion; Fuel cell; Bipolar plate (Shen, C. (166) 419)

## Graphite functionalization

Platinum electrodeposition; Fuel cells; Scharifker and Hills electrocrystallisation model (Massoni, N. (166) 68)

## Hard carbon

Carbon coating; Irreversible capacity; Air exposure; Negative-electrode material; Lithium-ion battery (Lee, J.-H. (166) 250)

## Hebb-Wagner polarization

Electrical conductivity; Oxygen ion conductivity; Oxygen vacancy; Lanthanum gallate (Wang, S. (166) 22)

## High rate performance

Nanocrystalline anatase  $TiO_2$ ; Lithium insertion (Jiang, C. (166) 239)

## High tap-density

Lithium secondary batteries;  $Li_4Ti_5O_{12}$ ; Spherical; Conductivity (Gao, J. (166) 255)

## Hollow sphere

Spinel  $Li_4Ti_5O_{12}$ ; Li-ion battery; Rate capability (Jiang, C. (166) 514)

## Hybrid material

Batteries; Li-ion; Cathode;  $V_2O_5$ ; Conducting polymer (Boyano, I. (166) 471)

## Hybrid system

Solid oxide fuel cell; Gas turbine; Part-load performance; Efficiency; Power (Yang, J.S. (166) 155)

## Hydrocarbon

Direct-flame solid oxide fuel cell; DFFC; SOFC; Reforming; Partial oxidation (Kronemayer, H. (166) 120)

## Hydrofluoric acid

Lithium manganese oxide; Lithium-ion battery; Capacity retention; Zirconium oxide particles (Park, S.B. (166) 219)

## Hydrogen evolution

Hydrogen production; Methanol electrolysis; Electrocatalyst; Tungsten carbide (Hu, Z. (166) 458)

## Hydrogen evolution

Photosensitized; Silica gel; Eosin Y; Visible-light irradiation (Zhang, X. (166) 74)

## Hydrogen evolution reaction (HER)

PtPd-W/C electrocatalyst; Tungsten carbide (WC); Fuel cell (Wu, M. (166) 310)

## Hydrogen production

Methanol electrolysis; Hydrogen evolution; Electrocatalyst; Tungsten carbide (Hu, Z. (166) 458)

## Hydrogen production

Steam electrolyser; SOEC; Intermediate temperature; Planar; Dynamic model (Udagawa, J. (166) 127)

## Hydrogen-fuel-cell vehicle

Plug-in hybrid; Plug-out hybrid; Mobile Electricity innovation; Vehicle-to-grid power; Vehicular distributed generation (Williams, B.D. (166) 549)

## Hydrothermal synthesis

Nano-mixed oxides; Electrochemical capacitor; Carbon nano-tubes; Cyclic voltammetry (Jayalakshmi, M. (166) 578)

## Hyperbranched polymer

Poly(3,4-ethylenedioxythiophene); Aluminum electrolytic capacitor (Nogami, K. (166) 584)

## Hypochlorite

Catalytic metals; Zinc; Aluminum; Batteries; Cells (Cardenas-Valencia, A.M. (166) 273)

## In situ spectroscopy

Manganese oxide; Pseudo-capacitance; Supercapacitor; X-ray absorption (Chang, J.-K. (166) 590)

## Intermediate temperature

Hydrogen production; Steam electrolyser; SOEC; Planar; Dynamic model (Udagawa, J. (166) 127)

## Interpenetrating polymer network

Gel polymer electrolyte; Membrane; Phase inversion; Ionic conductivity (Wang, Y.-J. (166) 202)

## Inverter

Alternate energy systems; Ripple (dc-bus voltage ripple); DSP (Shireen, W. (166) 445)

## Ionic conductivity

Gel polymer electrolyte; Membrane; Phase inversion; Interpenetrating polymer network (Wang, Y.-J. (166) 202)

## Ionic dissociation

Electric double layer capacitor; Ionic liquid electrolyte; Capacitance; Composite electrode (Nagao, Y. (166) 595)

## Ionic liquid electrolyte

Electric double layer capacitor; Capacitance; Ionic dissociation; Composite electrode (Nagao, Y. (166) 595)

## Irreversible capacity

Hard carbon; Carbon coating; Air exposure; Negative-electrode material; Lithium-ion battery (Lee, J.-H. (166) 250)

## Lanthanum chromite

Solid oxide fuel cell; Nanoparticle; Catalyst; Ruthenium (Madsen, B.D. (166) 64)

## Lanthanum gallate

Electrical conductivity; Hebb-Wagner polarization; Oxygen ion conductivity; Oxygen vacancy (Wang, S. (166) 22)

## Lanthanum strontium cobalt iron oxide (LSCF)

Solid oxide fuel cell (SOFC); Micro-hotplate; Thin film; Spray pyrolysis; Thermal cycling (Beckel, D. (166) 143)

## Lead electrodeposition

Copper substrate; Sorbitol; Voltammetry; Scanning electron microscopy; Energy-dispersive X-ray spectroscopy (Siqueira, J.L.P. (166) 519)

 $Li_{1.05}Ni_{0.35}Co_{0.25}Mn_{0.4}O_2$ 

Cathode material; Sol-gel coating;  $LiCoO_2$ ; Lithium ion battery (Son, J.T. (166) 343)

 $Li_{1+x}Ni_{1-x-y}Co_xM_yO_2$ 

Lithium ion battery; Cathode;  $CO_2$ ; Ni valence (Shizuka, K. (166) 233)

 $Li_4Ti_5O_{12}$ 

Lithium secondary batteries; High tap-density; Spherical; Conductivity (Gao, J. (166) 255)

## Li-battery

Nanobelts; Polyethyleneglycol;  $V_2O_5$  Xerogel (Reddy, C.V.S. (166) 244)

 $LiCoO_2$ 

Cathode material;  $Li_{1.05}Ni_{0.35}Co_{0.25}Mn_{0.4}O_2$ ; Sol-gel coating; Lithium ion battery (Son, J.T. (166) 343)

 $LiFePO_4$ 

Mechanical activation; Rechargeable lithium battery; Discharge capacity; Cathode material; Cycling performance (Kim, J.-K. (166) 211)

 $LiFePO_4-C$  composite

Vibrant type ball-milling; Microwave heating; Particle size; Carbon distribution; Discharge capacity; Lithium battery (Song, M.-S. (166) 260)

## Li-ion

Batteries; Cathode;  $V_2O_5$ ; Conducting polymer; Hybrid material (Boyano, I. (166) 471)

**Li-ion**  
 Capacitor; Asymmetric capacitor; Nanogate carbon; Automotive (Aida, T. (166) 462)

**Li-ion battery**  
 Spinel  $\text{Li}_4\text{Ti}_5\text{O}_{12}$ ; Hollow sphere; Rate capability (Jiang, C. (166) 514)

$\text{LiMn}_2\text{O}_4$   
 Lithium batteries; Lithium manganese spinel; Template method; Silica gel (Cabana, J. (166) 492)

$\text{LiMn}_2\text{O}_4$   
 Lithium bis(oxalato)borate; Electrolyte; Salt (Yu, B.-T. (166) 499)

**Lithium aluminate**  
 Mesoporous; Composite polymer electrolyte (Hu, L. (166) 226)

**Lithium batteries**  
 $\text{LiMn}_2\text{O}_4$ ; Lithium manganese spinel; Template method; Silica gel (Cabana, J. (166) 492)

**Lithium battery**  
 $\text{LiFePO}_4\text{-C}$  composite; Vibrant type ball-milling; Microwave heating; Particle size; Carbon distribution; Discharge capacity (Song, M.-S. (166) 260)

**Lithium bis(oxalato)borate**  
 Electrolyte; Salt;  $\text{LiMn}_2\text{O}_4$  (Yu, B.-T. (166) 499)

**Lithium insertion**  
 Nanocrystalline anatase  $\text{TiO}_2$ ; High rate performance (Jiang, C. (166) 239)

**Lithium ion battery**  
 Aluminum; Tin oxide; Anode; Surface modification (Lei, X. (166) 509)

**Lithium ion battery**  
 Anode; Current collector; Electrodeposition (Jiang, T. (166) 503)

**Lithium ion battery**  
 Cathode;  $\text{Li}_{1+z}\text{Ni}_{1-x}-y\text{Co}_x\text{M}_y\text{O}_2$ ;  $\text{CO}_2$ ; Ni valence (Shizuka, K. (166) 233)

**Lithium ion battery**  
 Cathode material;  $\text{Li}_{1.05}\text{Ni}_{0.35}\text{Co}_{0.25}\text{Mn}_{0.4}\text{O}_2$ ; Sol-gel coating;  $\text{LiCoO}_2$  (Son, J.T. (166) 343)

**Lithium manganese oxide**  
 Lithium-ion battery; Capacity retention; Hydrofluoric acid; Zirconium oxide particles (Park, S.B. (166) 219)

**Lithium manganese spinel**  
 Lithium batteries;  $\text{LiMn}_2\text{O}_4$ ; Template method; Silica gel (Cabana, J. (166) 492)

**Lithium secondary batteries**  
 $\text{Li}_4\text{Ti}_5\text{O}_{12}$ ; High tap-density; Spherical; Conductivity (Gao, J. (166) 255)

**Lithium-ion batteries**  
 Al-doped spinels; Cycling performance; Oxygen deficiency; Mn dissolution (Xia, Y. (166) 485)

**Lithium-ion battery**  
 Carbon anode; Self-discharge; Capacity loss simulation; Storage (Ramasamy, R.P. (166) 266)

**Lithium-ion battery**  
 Hard carbon; Carbon coating; Irreversible capacity; Air exposure; Negative-electrode material (Lee, J.-H. (166) 250)

**LSGM**  
 SOFC; GNP; Electrolyte (Lee, D. (166) 35)

**Manganese oxide**  
 Pseudo-capacitance; Supercapacitor; X-ray absorption; In situ spectroscopy (Chang, J.-K. (166) 590)

**Mass activities**  
 Direct methanol fuel cell; Sputter-deposition (Makino, K. (166) 30)

**Mass transfer layer**  
 Diffusion; DMFC; Expanded graphite; Perforation (Yazici, M.S. (166) 424)

**MCFC**  
 Nickel solubility; Fuel cells (Bodén, A. (166) 59)

**Mechanical activation**  
 $\text{LiFePO}_4\text{-C}$ ; Rechargeable lithium battery; Discharge capacity; Cathode material; Cycling performance (Kim, J.-K. (166) 211)

**Mechanistic modelling**  
 Tubular SOFC; Cathode-supported; Synthesis gas; Biomass fuel (Suwanwarangkul, R. (166) 386)

**Membrane**  
 Gel polymer electrolyte; Phase inversion; Interpenetrating polymer network; Ionic conductivity (Wang, Y.-J. (166) 202)

**Membrane electrode assembly**  
 Polyaniline, Sol-gel modified Nafion; Methanol crossover; Direct methanol fuel cell peak power (Chen, C.-Y. (166) 324)

**Mesoporous**  
 Lithium aluminate; Composite polymer electrolyte (Hu, L. (166) 226)

**Methanol conversion**  
 Fuel cell; Packed-bed reformer; Wall-coated reformer (Lee, M.-t. (166) 194)

**Methanol crossover**  
 Polyaniline, Sol-gel modified Nafion; Direct methanol fuel cell peak power; Membrane electrode assembly (Chen, C.-Y. (166) 324)

**Methanol electrolysis**  
 Hydrogen production; Hydrogen evolution; Electrocatalyst; Tungsten carbide (Hu, Z. (166) 458)

**Methanol electrooxidation**  
 Direct methanol fuel cell; Pt-Ru/C nanoparticle electrocatalyst; Different buffer solutions (Wang, Z.-B. (166) 317)

**Methanol oxidation**  
 PtRu/C; PtSn/C; PtSnRu/C; Alcohol-reduction process; Ethanol oxidation; Fuel cell (Neto, A.O. (166) 87)

**Methanol steam reformer**  
 Portable power; Microreactor; PEMFC; Fuel processing; Thermal management (Shah, K. (166) 177)

**Methanol–steam reforming reaction**  
 Proton exchange membrane fuel cell; Reformer; Catalyst; Conversion rate; Yield rate (Huang, C.-Y. (166) 450)

**Micro-hotplate**  
 Solid oxide fuel cell (SOFC); Thin film; Spray pyrolysis; Lanthanum strontium cobalt iron oxide (LSCF); Thermal cycling (Beckel, D. (166) 143)

**Micro-porous layer**  
 Polymer electrolyte fuel cells; Graded porosity; Gas diffusion layer (Tang, H. (166) 41)

**Microreactor**  
 Portable power; PEMFC; Fuel processing; Methanol steam reformer; Thermal management (Shah, K. (166) 177)

**Microstructure**  
 Solid oxide fuel cell (SOFC); Gradient anode; Anode functional layer (AFL); Ni-YSZ cermet; Cell performance (Kong, J. (166) 337)

**Microwave heating**  
 $\text{LiFePO}_4\text{-C}$  composite; Vibrant type ball-milling; Particle size; Carbon distribution; Discharge capacity; Lithium battery (Song, M.-S. (166) 260)

**Miniature fuel cell**  
 PEMFC stack; Fuel buffer/distributor; Small hydrogen storage canister (Zhang, X. (166) 441)

**Mn dissolution**  
 Al-doped spinels; Cycling performance; Oxygen deficiency; Lithium-ion batteries (Xia, Y. (166) 485)

**Mobile Electricity innovation**  
 Hydrogen-fuel-cell vehicle; Plug-in hybrid; Plug-out hybrid; Vehicle-to-grid power; Vehicular distributed generation (Williams, B.D. (166) 549)

**Model**  
 Silver-zinc battery; Constant current discharge; Porous electrodes; Multiple electrode reactions (Venkatraman, M. (166) 537)

**Modeling**  
 Molten carbonate fuel cell (MCFC); Takagi–Sugeno (T-S) fuzzy model (Yang, F. (166) 354)

**Modeling**  
 PEM fuel cell; Water management (Vorobev, A. (166) 92)

**Molten carbonate fuel cell**  
 Biomass gasification; Computational fluid dynamics; Nanotechnology; Carbon; Fluidization (Gidaspow, D. (166) 400)

Molten carbonate fuel cell  
Dy; Ni–Dy alloys; NiO solubility; Electrochemical polarization (Liu, Z.P. (166) 348)

Molten carbonate fuel cell (MCFC)  
Modeling; Takagi–Sugeno (T–S) fuzzy model (Yang, F. (166) 354)

Molten carbonate fuel cell (MCFC)  
Tubular type reformer; *S/C* ratio (steam to carbon ratio); CH<sub>4</sub> conversion ratio; CO conversion ratio; Efficiency of reformer (Seo, H.-K. (166) 165)

Multi-objective optimization  
Polymer electrolyte membrane fuel cells (Na, W. (166) 411)

Multiple electrode reactions  
Silver–zinc battery; Model; Constant current discharge; Porous electrodes (Venkatraman, M. (166) 537)

Nafion/SiO<sub>2</sub> hybrid membrane  
Vanadium redox flow battery; Vanadium permeability (Xi, J. (166) 531)

Nanobelts  
Polyethylene glycol; V<sub>2</sub>O<sub>5</sub> Xerogel; Li–battery (Reddy, C.V.S. (166) 244)

Nanocrystalline anatase TiO<sub>2</sub>  
Lithium insertion; High rate performance (Jiang, C. (166) 239)

Nanogate carbon  
Li-ion; Capacitor; Asymmetric capacitor; Automotive (Aida, T. (166) 462)

Nano-mixed oxides  
Hydrothermal synthesis; Electrochemical capacitor; Carbon nano-tubes; Cyclic voltammetry (Jayalakshmi, M. (166) 578)

Nano-nickel  
Electrodeposition; Characterization; Ethanol oxidation (Jin, G.-P. (166) 80)

Nanoparticle  
Solid oxide fuel cell; Catalyst; Ruthenium; Lanthanum chromite (Madsen, B.D. (166) 64)

Nano-sized Co<sub>3</sub>O<sub>4</sub>  
Electrolytic deposition; Thin film; Raman spectroscopy (Liu, H.-C. (166) 478)

Nanotechnology  
Molten carbonate fuel cell; Biomass gasification; Computational fluid dynamics; Carbon; Fluidization (Gidaspow, D. (166) 400)

Negative-electrode material  
Hard carbon; Carbon coating; Irreversible capacity; Air exposure; Lithium-ion battery (Lee, J.-H. (166) 250)

Ni valence  
Lithium ion battery; Cathode; Li<sub>1+z</sub>Ni<sub>1-x</sub>–yCo<sub>x</sub>M<sub>y</sub>O<sub>2</sub>; CO<sub>2</sub> (Shizuka, K. (166) 233)

Nickel solubility  
MCFC; Fuel cells (Bodén, A. (166) 59)

Nickel–cadmium cell  
Polypropylene membrane; Acetone oligomerization; Electrochemical properties (Ciszewski, A. (166) 526)

Ni–Dy alloys  
Molten carbonate fuel cell; Dy; NiO solubility; Electrochemical polarization (Liu, Z.P. (166) 348)

NiO solubility  
Molten carbonate fuel cell; Dy; Ni–Dy alloys; Electrochemical polarization (Liu, Z.P. (166) 348)

Ni–YSZ cermet  
Solid oxide fuel cell (SOFC); Gradient anode; Anode functional layer (AFL); Microstructure; Cell performance (Kong, J. (166) 337)

NO<sub>x</sub>  
Proton exchange membrane fuel cell (PEMFC); Environmental contamination; SO<sub>2</sub> (Jing, F. (166) 172)

Oxygen bleeding  
Transient model; Two-phase; CO poisoning; Platinum–ruthenium (Shah, A.A. (166) 1)

Oxygen deficiency  
Al-doped spinels; Cycling performance; Mn dissolution; Lithium-ion batteries (Xia, Y. (166) 485)

Oxygen ion conductivity  
Electrical conductivity; Hebb–Wagner polarization; Oxygen vacancy; Lanthanum gallate (Wang, S. (166) 22)

Oxygen vacancy  
Electrical conductivity; Hebb–Wagner polarization; Oxygen ion conductivity; Lanthanum gallate (Wang, S. (166) 22)

Packed-bed reformer  
Fuel cell; Methanol conversion; Wall-coated reformer (Lee, M.-t. (166) 194)

Partial oxidation  
Direct-flame solid oxide fuel cell; DFFC; SOFC; Hydrocarbon; Reforming (Kronemayer, H. (166) 120)

Particle size  
LiFePO<sub>4</sub>–C composite; Vibrant type ball-milling; Microwave heating; Carbon distribution; Discharge capacity; Lithium battery (Song, M.-S. (166) 260)

Part-load performance  
Solid oxide fuel cell; Gas turbine; Hybrid system; Efficiency; Power (Yang, J.S. (166) 155)

Pellet fuel cell  
Solid oxide fuel cell; Temperature mapping; Thermal imaging (Brett, D.J.L. (166) 112)

PEM fuel cell  
Cellulose acetate; Carbon aerogel; Electrocatalyst support; Platinum nanoparticles (Guilminot, E. (166) 104)

PEM fuel cell  
Modeling; Water management (Vorobev, A. (166) 92)

PEMFC  
Portable power; Microreactor; Fuel processing; Methanol steam reformer; Thermal management (Shah, K. (166) 177)

PEMFC stack  
Miniature fuel cell; Fuel buffer/distributor; Small hydrogen storage canister (Zhang, X. (166) 441)

PEMFCs  
Endplates; Aluminium alloy; Surface treatments (Fu, Y. (166) 435)

Perforation  
Mass transfer layer; Diffusion; DMFC; Expanded graphite (Yazici, M.S. (166) 424)

Phase inversion  
Gel polymer electrolyte; Membrane; Interpenetrating polymer network; Ionic conductivity (Wang, Y.-J. (166) 202)

Photosensitized  
Silica gel; Eosin Y; Hydrogen evolution; Visible-light irradiation (Zhang, X. (166) 74)

Planar  
Hydrogen production; Steam electrolyser; SOEC; Intermediate temperature; Dynamic model (Udagawa, J. (166) 127)

Platinum electrodeposition  
Graphite functionalization; Fuel cells; Scharifker and Hills electrocrystallization model (Massoni, N. (166) 68)

Platinum nanoparticles  
Cellulose acetate; Carbon aerogel; Electrocatalyst support; PEM fuel cell (Guilminot, E. (166) 104)

Platinum usage  
Proton-exchange membrane fuel cell; Catalyst-gradient (Prasanna, M. (166) 53)

Platinum–ruthenium  
Transient model; Two-phase; CO poisoning; Oxygen bleeding (Shah, A.A. (166) 1)

Plug-in hybrid  
Hydrogen-fuel-cell vehicle; Plug-out hybrid; Mobile Electricity innovation; Vehicle-to-grid power; Vehicular distributed generation (Williams, B.D. (166) 549)

Plug-out hybrid  
Hydrogen-fuel-cell vehicle; Plug-in hybrid; Mobile Electricity innovation; Vehicle-to-grid power; Vehicular distributed generation (Williams, B.D. (166) 549)

Polarization curve  
Proton-exchange membrane fuel cell; Balance-of-plant; Cathode inlet manifold; Power; Efficiency (Kim, S.Y. (166) 430)

Poly(3,4-ethylenedioxythiophene)  
Hyperbranched polymer; Aluminum electrolytic capacitor (Nogami, K. (166) 584)

Polyaniline  
Composite electrode; Ruthenium oxide; Supercapacitor; Pseudocapacitance; Specific capacitance (Song, R.Y. (166) 297)

Polyaniline, Sol-gel modified Nafion  
Methanol crossover; Direct methanol fuel cell peak power; Membrane electrode assembly (Chen, C.-Y. (166) 324)

Polyethyleneglycol  
Nanobelts;  $V_2O_5$  Xerogel; Li-battery (Reddy, C.V.S. (166) 244)

Polymer electrolyte fuel cells  
Micro-porous layer; Graded porosity; Gas diffusion layer (Tang, H. (166) 41)

Polymer electrolyte membrane fuel cells  
Multi-objective optimization (Na, W. (166) 411)

Propylene membrane  
Nickel-cadmium cell; Acetone oligomerization; Electrochemical properties (Ciszewski, A. (166) 526)

Porous electrodes  
Silver-zinc battery; Model; Constant current discharge; Multiple electrode reactions (Venkatraman, M. (166) 537)

Porous media  
Direct methanol fuel cell; Water transport; Dry-out; Two-phase flow (Shi, M.H. (166) 303)

Portable power  
Microreactor; PEMFC; Fuel processing; Methanol steam reformer; Thermal management (Shah, K. (166) 177)

Power  
Proton-exchange membrane fuel cell; Balance-of-plant; Cathode inlet manifold; Polarization curve; Efficiency (Kim, S.Y. (166) 430)

Power  
Solid oxide fuel cell; Gas turbine; Hybrid system; Part-load performance; Efficiency (Yang, J.S. (166) 155)

Proton exchange membrane fuel cell  
Electro-physical properties; Clamping pressure (Chang, W.R. (166) 149)

Proton exchange membrane fuel cell  
Reformer; Methanol-steam reforming reaction; Catalyst; Conversion rate; Yield rate (Huang, C.-Y. (166) 450)

Proton exchange membrane fuel cell  
Shoulder/channel ratio; Electrochemical reaction; Activation overpotential; Cell performance (Chiang, M.-S. (166) 362)

Proton exchange membrane fuel cell (PEMFC)  
Environmental contamination;  $NO_x$ ;  $SO_2$  (Jing, F. (166) 172)

Proton-exchange membrane fuel cell  
Balance-of-plant; Cathode inlet manifold; Polarization curve; Power; Efficiency (Kim, S.Y. (166) 430)

Proton-exchange membrane fuel cell  
Platinum usage; Catalyst-gradient (Prasanna, M. (166) 53)

Pseudo-capacitance  
Manganese oxide; Supercapacitor; X-ray absorption; In situ spectroscopy (Chang, J.-K. (166) 590)

Pseudocapacitance  
Polyaniline; Composite electrode; Ruthenium oxide; Supercapacitor; Specific capacitance (Song, R.Y. (166) 297)

PtPd-WC/C electrocatalyst  
Hydrogen evolution reaction (HER); Tungsten carbide (WC); Fuel cell (Wu, M. (166) 310)

Pt-Ru catalyst  
DMFCs; Sensitization; Activation (Zhu, J. (166) 331)

PtRu/C  
PtSn/C; PtSnRu/C; Alcohol-reduction process; Methanol oxidation; Ethanol oxidation; Fuel cell (Neto, A.O. (166) 87)

PtRu/C nanoparticle electrocatalyst  
Direct methanol fuel cell; Methanol electrooxidation; Different buffer solutions (Wang, Z.-B. (166) 317)

PtSn/C  
PtRu/C; PtSnRu/C; Alcohol-reduction process; Methanol oxidation; Ethanol oxidation; Fuel cell (Neto, A.O. (166) 87)

PtSnRu/C  
PtRu/C; PtSn/C; Alcohol-reduction process; Methanol oxidation; Ethanol oxidation; Fuel cell (Neto, A.O. (166) 87)

Raman spectroscopy  
Electrolytic deposition; Nano-sized  $Co_3O_4$ ; Thin film (Liu, H.-C. (166) 478)

Rate capability  
Spinel  $Li_4Ti_5O_{12}$ ; Hollow sphere; Li-ion battery (Jiang, C. (166) 514)

Rechargeable lithium battery  
 $LiFePO_4$ ; Mechanical activation; Discharge capacity; Cathode material; Cycling performance (Kim, J.-K. (166) 211)

Reformer  
Proton exchange membrane fuel cell; Methanol-steam reforming reaction; Catalyst; Conversion rate; Yield rate (Huang, C.-Y. (166) 450)

Reforming  
Direct-flame solid oxide fuel cell; DFFC; SOFC; Hydrocarbon; Partial oxidation (Kronemayer, H. (166) 120)

Ripple (dc-bus voltage ripple)  
Alternate energy systems; Inverter; DSP (Shireen, W. (166) 445)

Ruthenium  
Solid oxide fuel cell; Nanoparticle; Catalyst; Lanthanum chromite (Madsen, B.D. (166) 64)

Ruthenium oxide  
Polyaniline; Composite electrode; Supercapacitor; Pseudocapacitance; Specific capacitance (Song, R.Y. (166) 297)

S/C ratio (steam to carbon ratio)  
Tubular type reformer; Molten carbonate fuel cell (MCFC);  $CH_4$  conversion ratio; CO conversion ratio; Efficiency of reformer (Seo, H.-K. (166) 165)

Salt  
Lithium bis(oxalato)borate; Electrolyte;  $LiMn_2O_4$  (Yu, B.-T. (166) 499)

Scanning electron microscopy  
Lead electrodeposition; Copper substrate; Sorbitol; Voltammetry; Energy-dispersive X-ray spectroscopy (Siqueira, J.L.P. (166) 519)

Scharifker and Hills electrocrystallisation model  
Platinum electrodeposition; Graphite functionalization; Fuel cells (Massoni, N. (166) 68)

Self-discharge  
Lithium-ion battery; Carbon anode; Capacity loss simulation; Storage (Ramasamy, R.P. (166) 266)

Sensitivity analysis  
SOFC; Fuel cell; Design; Adjoint (Kapadia, S. (166) 376)

Sensitization  
DMFCs; Pt-Ru catalyst; Activation (Zhu, J. (166) 331)

Shoulder/channel ratio  
Proton exchange membrane fuel cell; Electrochemical reaction; Activation overpotential; Cell performance (Chiang, M.-S. (166) 362)

Silica gel  
Lithium batteries;  $LiMn_2O_4$ ; Lithium manganese spinel; Template method (Cabana, J. (166) 492)

Silica gel  
Photosensitized; Eosin Y; Hydrogen evolution; Visible-light irradiation (Zhang, X. (166) 74)

Silver-zinc battery  
Model; Constant current discharge; Porous electrodes; Multiple electrode reactions (Venkatraman, M. (166) 537)

Small hydrogen storage canister  
Miniature fuel cell; PEMFC stack; Fuel buffer/distributor (Zhang, X. (166) 441)

$SO_2$   
Proton exchange membrane fuel cell (PEMFC); Environmental contamination;  $NO_x$  (Jing, F. (166) 172)

SOEC  
Hydrogen production; Steam electrolyser; Intermediate temperature; Planar; Dynamic model (Udagawa, J. (166) 127)

**SOFC**  
 Direct-flame solid oxide fuel cell; DFFC; Hydrocarbon; Reforming; Partial oxidation (Kronemayer, H. (166) 120)

**SOF**  
 Fuel cell; Design; Adjoint; Sensitivity analysis (Kapadia, S. (166) 376)

**SOF**  
 LSGM; GNP; Electrolyte (Lee, D. (166) 35)

**Sol-gel coating**  
 Cathode material;  $\text{Li}_{1.05}\text{Ni}_{0.35}\text{Co}_{0.25}\text{Mn}_{0.4}\text{O}_2$ ;  $\text{LiCoO}_2$ ; Lithium ion battery (Son, J.T. (166) 343)

**Solid characterisation**  
 Chemical manganese dioxide; Factorial designs (Pagnanelli, F. (166) 567)

**Solid oxide fuel cell**  
 Anode; Y-doped  $\text{SrTiO}_3$ ; Electrical conductivity (Li, X. (166) 47)

**Solid oxide fuel cell**  
 Gas turbine; Hybrid system; Part-load performance; Efficiency; Power (Yang, J.S. (166) 155)

**Solid oxide fuel cell**  
 Nanoparticle; Catalyst; Ruthenium; Lanthanum chromite (Madsen, B.D. (166) 64)

**Solid oxide fuel cell (SOFC)**  
 Gradient anode; Anode functional layer (AFL); Ni-YSZ cermet; Microstructure; Cell performance (Kong, J. (166) 337)

**Solid oxide fuel cell (SOFC)**  
 Micro-hotplate; Thin film; Spray pyrolysis; Lanthanum strontium cobalt iron oxide (LSCF); Thermal cycling (Beckel, D. (166) 143)

**Sorbitol**  
 Lead electrodeposition; Copper substrate; Voltammetry; Scanning electron microscopy; Energy-dispersive X-ray spectroscopy (Siqueira, J.L.P. (166) 519)

**Specific capacitance**  
 Polyaniline; Composite electrode; Ruthenium oxide; Supercapacitor; Pseudocapacitance (Song, R.Y. (166) 297)

**Spherical**  
 Lithium secondary batteries;  $\text{Li}_4\text{Ti}_5\text{O}_{12}$ ; High tap-density; Conductivity (Gao, J. (166) 255)

**Spinel  $\text{Li}_4\text{Ti}_5\text{O}_{12}$**   
 Hollow sphere; Li-ion battery; Rate capability (Jiang, C. (166) 514)

**Spray pyrolysis**  
 Solid oxide fuel cell (SOFC); Micro-hotplate; Thin film; Lanthanum strontium cobalt iron oxide (LSCF); Thermal cycling (Beckel, D. (166) 143)

**Sputter-deposition**  
 Direct methanol fuel cell; Mass activities (Makino, K. (166) 30)

**Steam electrolyser**  
 Hydrogen production; SOEC; Intermediate temperature; Planar; Dynamic model (Udagawa, J. (166) 127)

**Storage**  
 Lithium-ion battery; Carbon anode; Self-discharge; Capacity loss simulation (Ramasamy, R.P. (166) 266)

**Supercapacitor**  
 Manganese oxide; Pseudo-capacitance; X-ray absorption; In situ spectroscopy (Chang, J.-K. (166) 590)

**Supercapacitor**  
 Polyaniline; Composite electrode; Ruthenium oxide; Pseudocapacitance; Specific capacitance (Song, R.Y. (166) 297)

**Surface modification**  
 Lithium ion battery; Aluminum; Tin oxide; Anode (Lei, X. (166) 509)

**Surface treatments**  
 PEMFCs; Endplates; Aluminium alloy (Fu, Y. (166) 435)

**Synthesis gas**  
 Mechanistic modelling; Tubular SOFC; Cathode-supported; Biomass fuel (Suwanwarangkul, R. (166) 386)

**Takagi-Sugeno (T-S) fuzzy model**  
 Modeling; Molten carbonate fuel cell (MCFC) (Yang, F. (166) 354)

**Temperature mapping**  
 Pellet fuel cell; Solid oxide fuel cell; Thermal imaging (Brett, D.J.L. (166) 112)

**Template method**  
 Lithium batteries;  $\text{LiMn}_2\text{O}_4$ ; Lithium manganese spinel; Silica gel (Cabana, J. (166) 492)

**Thermal cycling**  
 Solid oxide fuel cell (SOFC); Micro-hotplate; Thin film; Spray pyrolysis; Lanthanum strontium cobalt iron oxide (LSCF) (Beckel, D. (166) 143)

**Thermal imaging**  
 Pellet fuel cell; Solid oxide fuel cell; Temperature mapping (Brett, D.J.L. (166) 112)

**Thermal management**  
 Portable power; Microreactor; PEMFC; Fuel processing; Methanol steam reformer (Shah, K. (166) 177)

**Thin film**  
 Electrolytic deposition; Nano-sized  $\text{Co}_3\text{O}_4$ ; Raman spectroscopy (Liu, H.-C. (166) 478)

**Thin film**  
 Solid oxide fuel cell (SOFC); Micro-hotplate; Spray pyrolysis; Lanthanum strontium cobalt iron oxide (LSCF); Thermal cycling (Beckel, D. (166) 143)

**Tin oxide**  
 Lithium ion battery; Aluminum; Anode; Surface modification (Lei, X. (166) 509)

**Transient model**  
 Two-phase; CO poisoning; Oxygen bleeding; Platinum-ruthenium (Shah, A.A. (166) 1)

**Tubular SOFC**  
 Mechanistic modelling; Cathode-supported; Synthesis gas; Biomass fuel (Suwanwarangkul, R. (166) 386)

**Tubular type reformer**  
 Molten carbonate fuel cell (MCFC); S/C ratio (steam to carbon ratio);  $\text{CH}_4$  conversion ratio; CO conversion ratio; Efficiency of reformer (Seo, H.-K. (166) 165)

**Tungsten carbide**  
 Hydrogen production; Methanol electrolysis; Hydrogen evolution; Electrocatalyst (Hu, Z. (166) 458)

**Tungsten carbide (WC)**  
 Hydrogen evolution reaction (HER); PtPd-WC/C electrocatalyst; Fuel cell (Wu, M. (166) 310)

**Two-phase**  
 Transient model; CO poisoning; Oxygen bleeding; Platinum-ruthenium (Shah, A.A. (166) 1)

**Two-phase flow**  
 Direct methanol fuel cell; Porous media; Water transport; Dry-out (Shi, M.H. (166) 303)

**$\text{V}_2\text{O}_5$**   
 Batteries; Li-ion; Cathode; Conducting polymer; Hybrid material (Boyano, I. (166) 471)

**$\text{V}_2\text{O}_5$  Xerogel**  
 Nanobelts; Polyethyleneglycol; Li-battery (Reddy, C.V.S. (166) 244)

**Vanadium permeability**  
 Vanadium redox flow battery; Nafion/SiO<sub>2</sub> hybrid membrane (Xi, J. (166) 531)

**Vanadium redox flow battery**  
 Nafion/SiO<sub>2</sub> hybrid membrane; Vanadium permeability (Xi, J. (166) 531)

**Vehicle-to-grid power**  
 Hydrogen-fuel-cell vehicle; Plug-in hybrid; Plug-out hybrid; Mobile Electricity innovation; Vehicular distributed generation (Williams, B.D. (166) 549)

**Vehicular distributed generation**  
 Hydrogen-fuel-cell vehicle; Plug-in hybrid; Plug-out hybrid; Mobile Electricity innovation; Vehicle-to-grid power (Williams, B.D. (166) 549)

**Vibrant type ball-milling**  
 LiFePO<sub>4</sub>-C composite; Microwave heating; Particle size; Carbon distribution; Discharge capacity; Lithium battery (Song, M.-S. (166) 260)

Visible-light irradiation  
Photosensitized; Silica gel; Eosin Y; Hydrogen evolution (Zhang, X. (166) 74)

Voltammetry  
Lead electrodeposition; Copper substrate; Sorbitol; Scanning electron microscopy; Energy-dispersive X-ray spectroscopy (Siqueira, J.L.P. (166) 519)

Wall-coated reformer  
Fuel cell; Methanol conversion; Packed-bed reformer (Lee, M.-t. (166) 194)

Water management  
PEM fuel cell; Modeling (Vorobev, A. (166) 92)

Water transport  
Direct methanol fuel cell; Porous media; Dry-out; Two-phase flow (Shi, M.H. (166) 303)

X-ray absorption  
Manganese oxide; Pseudo-capacitance; Supercapacitor; In situ spectroscopy (Chang, J.-K. (166) 590)

Y-doped  $\text{SrTiO}_3$   
Solid oxide fuel cell; Anode; Electrical conductivity (Li, X. (166) 47)

Yield rate  
Proton exchange membrane fuel cell; Reformer; Methanol-steam reforming reaction; Catalyst; Conversion rate (Huang, C.-Y. (166) 450)

Zinc  
Hypochlorite; Catalytic metals; Aluminum; Batteries; Cells (Cardenas-Valencia, A.M. (166) 273)

Zirconium oxide particles  
Lithium manganese oxide; Lithium-ion battery; Capacity retention; Hydrofluoric acid (Park, S.B. (166) 219)